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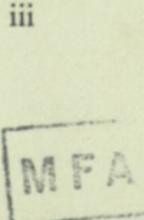
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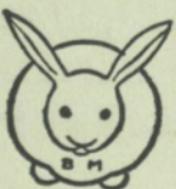
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HANDICRAFT

VOL. II NOVEMBER 1903 NO. VIII

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While contributions are invited from writers of all shades of opinion, the editors must disclaim responsibility for the opinions of contributors

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Elizabeth B. Stone. Illustrated.

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Principles of Handicraft

I. MOTIVES. The motives of the true Craftsman are the love of good and beautiful work as applied to useful service, and the need of making an adequate livelihood. In no case can it be primarily the love of gain.

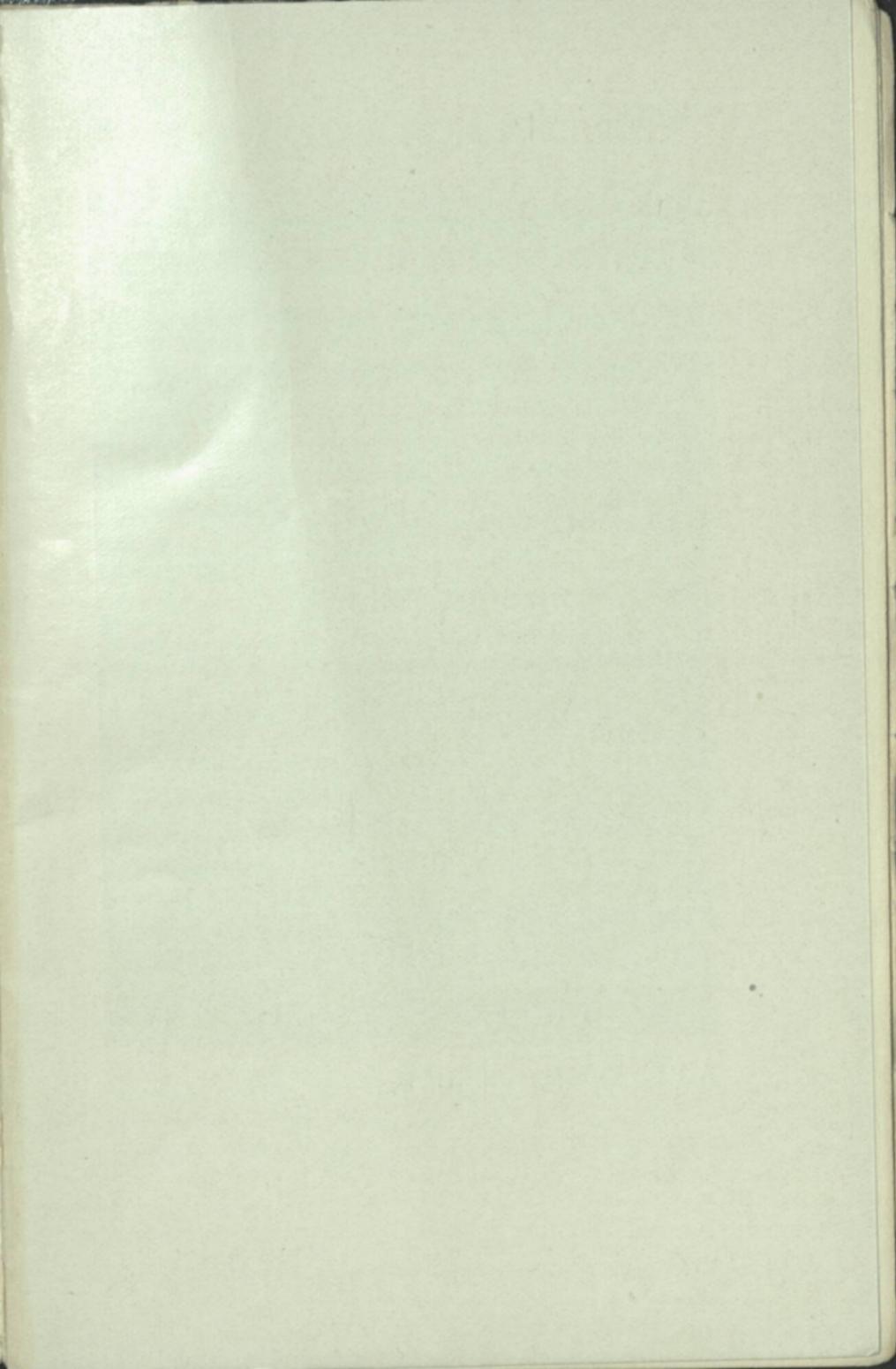
II. CONDITIONS. The conditions of true Handicraft are natural aptitude, thorough technical training, and a just appreciation of standards. The unit of labor should be an intelligent man, whose ability is used as a whole, and not subdivided for commercial purposes. He should exercise the faculty of design in connection with manual work, and manual work should be part of his training in design.

III. ARTISTIC CO-OPERATION. When the designer and the workman are not united in the same person, they should work together, each teaching the other his own special knowledge, so that the faculties of the designer and the workman may tend to become united in each.

IV. SOCIAL CO-OPERATION. Modern Craftsmanship requires that the idea of patronage be superseded by that of reciprocal service and co-operation.

V. RESULTS. The results aimed at are the training of true craftsmen, the developing of individual character in connection with artistic work, and the raising of standards of beauty in objects of use.

“It is only possible to answer for the final truth of principles, not for the direct success of plans.”





A SILVERSMITH'S SHOP

HANDICRAFT

VOL. II NOVEMBER, 1903 NO. VIII

THE SILVERSMITH'S TOOLS

By ELIZABETH B. STONE

“THERE is always work and tools to work withal, for those who will.”

The student of primitive man observes, with attention to the minutest detail, the shape, the texture, the weight of the rough-hewn implements which have survived him, from them deducting the uses to which they were put, and so determining the first needs of man. For the tool is an absolute record of man's wants, his habits and the quality of his conception. From simple forms, expressing no more than the need of sustenance and protection, and the first crude scratching that marks the dawn of ornament, through ages of increasing complexity of motive, the craftsman surrounds himself with tools that have a certain complementary individuality, fashioning them to interpret the thing he has in mind.

Between him and at least a few of his ever increasing collection there is a personality of feeling that has grown from long years of intimacy and the confident knowledge that they are the sympathetic creatures of his will. But carefully as he cherishes, jealously as he guards, and highly as he prizes his working outfit, your true craftsman is not subservient to it. The unuttered voice within him must be made audible, and lacking the proper equipment,

he is sure to make shift with whatever comes to hand.

A genial hostess tells with zest the story of a valued spoon, apparently ruined by having the bowl turned over and crushed. She was lamenting her misfortune in the presence of a silversmith, who asked if he might see it. "Stepped on, was it?" he said; "we might try stepping on it again." Suiting the words he put it under his foot, fingered it deftly, and returned her the shapely original.

The writer cherishes a crude pair of silver letter-scales, which will weigh up to two ounces, and were fashioned while she watched. The tools used were a pair of scissor can-openers, a hammer, a file, and a few little chasing-punches. Out of a pair of tablespoons, unfortunately of the old-time light weight, were made two little salts, fashioned from the bowls, and, from the handles, two salt-spoons and a lemonade-spoon. For making these were added to the tools first mentioned a kitchen flatiron and an iron bolt filed to shape the bowls.

Another pair of tablespoons, of later date and better weight, having been rescued from the village jeweler's scrap-box, where they had found their way, probably from being badly worn on one side, are now in service as a salad set, the pierced bowls calling for an additional saw. Work of this sort is more properly a diversion than a matter of serious consideration, but it seems not inaptly illustrative of Lowell's lines first quoted.

"To those that have eyes to see" belong the true millionaires, the rich ones of God's universe. If in

a stretch of swampy undergrowth the eye is only held by the brief carnival days in which it gives a royal exhibition of autumnal glory, and sees not the filmy delicacy of opening leaf-buds, the cool verdure of heated summer days, the penciled tracery of leafless shrubs heightened by the snow, or their subdued throbbing richness of color as they rise, sap-laden and full of promise, out of the frost-bitten past, the heart has not yet come into the full inheritance of its wealth of joy.

The Arts and Crafts movement arises from the need of such as have learned to see, and the craftsman finds a strong impelling impulse in the discrimination of the seeing eye. Intelligent appreciation of all forms of workmanship is intensified by a knowledge of the processes involved, and especially is this true if the work is of individual creation, accomplished by simple methods with tools easily understood, although not of necessity easily mastered.

It is well that countless experiments have so paved the way that many things have been settled and may be accepted without question. Crucibles and rolls are unnecessary if the work is limited. Reliable firms, whose sole business it is, provide guaranteed stock of any desired gage. No tests are required as to compounding the medium used, and the great principles involved in its working are established. It may be beaten or hammered ; becomes hardened by the process, but is made malleable again on application of heat. It may be drawn or pulled into a desired shape in the form of wire,

melted and cast in molds, or under great pressure made to assume a given pattern.

In its virgin state silver is too soft to resist wear, and always requires some proportion of baser metal to render it serviceable. This proportion has been practically unchanged for more than five hundred years, and the sterling stamp, to be looked for on all silver, guarantees that 9²⁵ parts in 1,000 are pure metal.

The spoons made in this country dating back from fifty years are generally stamped *coin*. The metal used in the making of coin contains 900 parts pure silver in 1,000—a somewhat harder composition, and undoubtedly desirable at a period of our history when silver was hard to obtain and costly.

The familiar thin, extremely light-weight spoons of our grandmothers' day are interesting examples, but they had a hopeless way of cracking across the broad end of the bowl, which made repairing a most trying problem. There seems to be no counterpart of these light American-made spoons among English collections. An English and American set in the writer's possession, both of the early nineteenth century, present very interesting and distinct characteristics.

England makes no distinction between coin and sterling silver, requiring both to be .925. Once only she departed from this rule, in 1697, when, suspecting the coin of her realm was being melted and used for plate, she ordered that slightly less alloy should be used for the latter. In thirty years she returned to the old standard, satisfied that the

Britannia standard was too soft to endure. Occasional examples of this period, known to the trade as Queen Anne silver, are to be found, but they are likely to be much worn, bearing the marks of frequent mending.

To be sure of the weight a pair of delicate scales is needed, and the thickness is determined by a circle of steel, known as the wire-gage, around whose circumference are cut the different gages both for wire and flat stock, the spaces being marked with numbers running from one to thirty-six. The extreme gages in hollow ware are from sixteen to twenty-four, and it is only necessary to find the slit which fits the stock.

The manufacturer of commercial silver, close pressed by competition, must perform figure on a minimum weight in his production. Thin stock may be reinforced by wire soldered to the edge, which gives it added strength. It is interesting to note in this connection, from a study of fine old examples, that the wire was not usual in early pieces. The difference in cost between a heavy and light gage in hollow ware is so slight, in comparison with the labor that goes into the making, it seems important that the craftsman, who is not considering quantities, and who is working to uplift the standards of his trade, should make sure that he works in a medium sufficiently strong to place its durability beyond doubt, and to insure its value, under rational usage, as a future heirloom.

For the raising of any metal it is necessary that the blow of the hammer be met with unyielding resis-

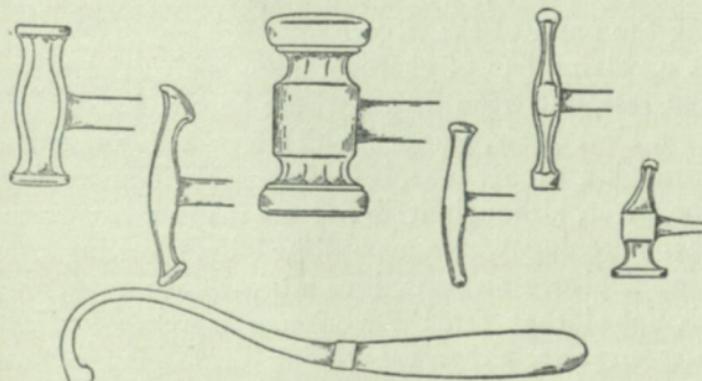
tance, and an anvil firmly bedded in a big wooden block, perhaps two feet high and twelve inches across, best serves the purpose. The blow is not delivered straight against the anvil, as in forging, but struck, as one might say, just off the solid. A blacksmith's anvil, with the sharp end of the horn sawed off and rounded, serves admirably for smaller pieces, but if the work is large a proper silversmith's anvil, with two arms branching from a central pillar, and slightly curved and rounded, is needed for advantageous work.

Another anvil, used in the forging of spoons, is strongly suggestive of a section of railroad iron, slightly elevated in mounting, the convex top facilitating the spreading of the silver under the hammer. Anvils are best, but only rarely in these days, made of steel; failing that, of wrought iron with a welded steel top. Cast-iron anvils answer many requirements, however, and are finding a place in the shops.

One thing is absolutely essential in all working of silver. The surface, over which and by which the metal is wrought, must be polished smooth and flawless, for it responds to any imperfection, and will take even the imprint of a hair on which it is hammered.

The hammers most naturally follow the anvils. Some are mallets of wood, thick and heavy, or light and slender; others are buffalo tips cut from the horns to a length of nine or ten inches, and attached to a wooden handle at the heavier end. The point is cut back for perhaps two inches and the blunted

edge so formed filed wedge-shape. Heavier ones of the same material are mallet-like, weight being given by a cast-iron frame into which the horn is inserted. The steel hammers are the most numerous family, ranging from the heavy forging-hammer weighing, it may be, four pounds, to the delicate chasing-hammer of less than an ounce. They are stubby or elongated, spherical or oval, flat, concave or convex, all sorts and conditions, with one common essential, their smooth and shining faces. Fifty hammers are no more than a moderate outfit, for from first to last, in all hand-made work, the hammer is always in service.



HAMMERS

No wonder a little fellow exclaimed as he gazed about the shop, "Do you make hammers here?" and the answer might truthfully have been, Yes, for the majority of them are shaped and cast to meet the exigencies of the worker, and are not found in the market.

For raising silver the mallet of wood, the horn tip, and the steel hammer have each their devotees. A London, Edinburgh or Dublin silversmith may be counted on to use the steel hammer. In Sheffield and Birmingham, where much German silver is made, one is pretty sure to find the buffalo tip in favor, because it is held to be somewhat quicker. In late years the tip is not so easily obtained, and the wooded mallet sometimes supplants it. In our country, where demand has made us cosmopolitan as to our workmen, the steel hammer is universally accepted, and quite invariably adopted even by those who have been trained to the horn tip. It is asserted that it works more satisfactorily in closing the grain of the silver.

A revolving pan of charcoal upon which the piece can rest, and a gas flame, whose heat is intensified by a blast of air, pumped with a foot-bellows or fan through a rubber tube, is indispensable in annealing the silver, although it is not so many years since this softening was accomplished by thrusting the pieces, placed on pans, into a great coke oven.

Equipped thus far, the workman is ready for his first process, either the raising or forging of his work. There is comparatively small range in the tools needed for hand-made flat ware. The shape is first rudely outlined by forging a straight strip, which should be considerably thicker, also shorter, than the pattern. It must be so hammered that the greatest thickness comes in the narrow shaft of the handle, while the bowl end is greatly broadened, and thereby made thinner. This done, it is filed to

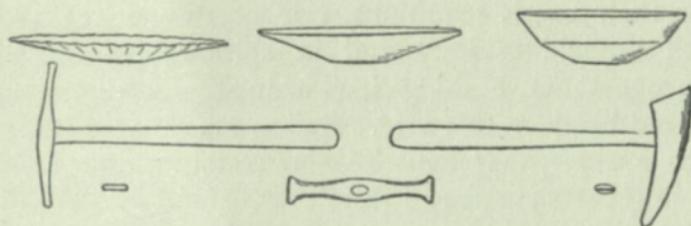
scale. The shaping of a spoon bowl, in hand-wrought work, may be done by striking it into a matrix of lead, with a convex, bowl-shaped punch, the matrix having been previously prepared by pressing the punch into melted lead, and allowing it to harden. There still remains the rounding and completing with the file before it can be bent into shape. The process is bound to be slow compared with machine-work, which has been wonderfully perfected. In place of the first rough forging the strip is cross-rolled, to spread the bowl. Another set of grading rolls distribute the thickness, and cutting-out dies, with a single blow, shape the pattern. Double dies under the great stamp not only ornament front and back at the same time, but in the latest processes give the contour. It is all done with an exactitude that leaves no rough edges, and reduces hand labor to the minimum.

For service hand-made spoons are practical only in the simpler patterns, depending for especial value either upon historical association or a careful study of beautiful lines. They admit of little ornamentation other than what may be given through color. The ornate spoons which mark our time are necessarily the product of the steel die and stamp. The exquisite application of beautiful die work to flat ware is essentially American, and a carefully chosen collection of the best examples might easily assume great historical value in connection with its period. Historical association does some memorable things by way of values. A retail price for spoons in regular market is rather more than a dollar an ounce.

At Christie's, in London (the same place from which Thackeray, in his "Four Georges," says, "Harry Walpole might have been seen hobbling into his carriage with some gimcrack just bought"), within the past six months there was sold a full set of thirteen apostle spoons, dated 1536, the price paid being £4,900, or over \$700 an ounce. The making of hollow ware presents an inexhaustible variety of form and ornamentation, and the tools required are more interesting and numerous. The design having been determined, it is first necessary to prepare from it the working scales. Sometimes it is desirable in interpreting a design to model a section of the piece in clay, to more clearly establish the balance of its parts. The silver is then cut from the flat stock, with a pair of heavy cutting shears, the base marked from the center out, and the edges uniformly crimped, suggesting the scalloped tin of the kitchen. Geometrical accuracy is imperative. Beginning just outside the base line, it is hammered round and round over the anvil, until the silver becomes too hard to answer to the blow. This process lifts it out from the flat and gradually straightens out the crimped edge.

The height to which it can be raised in a single course depends upon the skill of the hammerer. When it becomes hardened, it must be annealed and newly crimped and a second course of hammering begun, the process being repeated until the proper height is attained. The raising of a bowl with slightly curved sides is perhaps the simplest thing that can be undertaken, but the novice is in

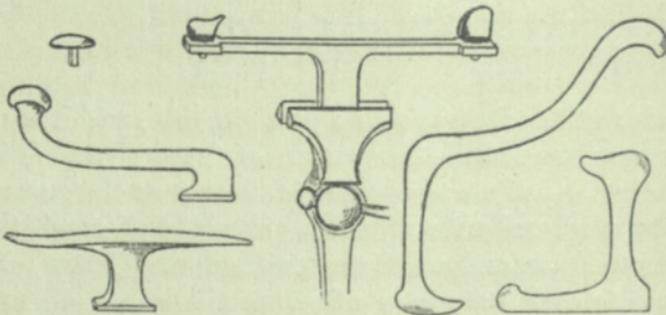
danger of so handling his stock that it becomes thin and uneven as the edge is approached, instead of gaining strength where strength is most needed, as it does under the trained hand.



COURSES IN RAISING A BOWL WITH
HAMMERS AND HORN MALLET

Raising lifts the sides in a straight line, and it must now be shaped to the pattern of the design. The first group of shaping-tools is known as the stakes. The most valuable of them are made of steel, the coveted possession of the craftsman. They may well be called a group of contortionists, such unconventional shapes as many of them assume. Some of them are aptly named from fancied resemblances, as the mushroom, crutch, saddle and gibbet stakes, but the majority of them go unnamed. A set of very prim and upright ones is used to shape bottoms, a perfectly flat surface being required where the piece is to stand on its own base, a convex top being used for bottoms having feet for a standard. The necking in stakes, used to get the concave outline of teapots and similar shapes, are quite symmetrical, suggesting with the upward turn at the end the thumb held horizontally. Whatever the curve outlined by the piece, it must be met with a

similar curve in the stake over which it is hammered, and as the line is continually changing with the advance of the work, one stake is often replaced by another which takes it forward to the desired end. For their use is required a vise firmly planted and with unyielding jaws, and in spite of attempted improvements nothing has been found to excel the old blacksmith's vise. Stakes are always made with a shaft, that may be clamped into the vise, leaving the shaped end free.



STAKES, WITH CRANK AND HEADS

Heads are a group of smaller tools, equally varied as to shape. They are all made with a shank which fits into either end of a tee-shaped crank, which in turn is fastened into the vise. They are to some extent interchangeable with the stakes, but their general purpose is for the final lighter hammering necessary to give an even surface. They are stubby, highly polished, little tools, all fitted to the same crank. Neither heads nor stakes will be found catalogued among supplies, being usually cast in iron from wooden models made to suit the work.

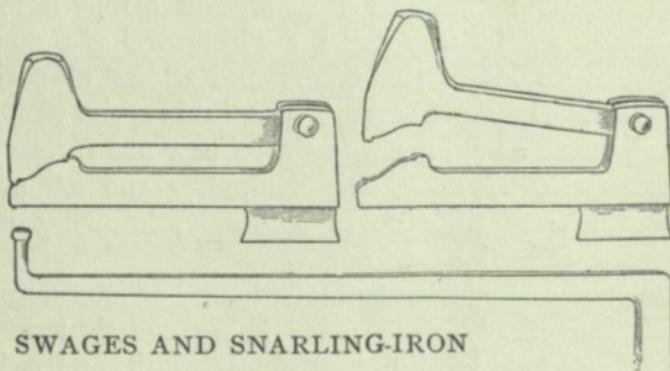
In factories, drafting in presses and spinning supplant the raising and shaping of hand-made work. In spinning, the piece is shaped in gradual courses on a lathe, over a wooden model; the spinner starting from the center, first working from the inside, to draw it up slightly, and then conforming it to the model from the outside by pressure of a heavy steel burnish held against it as it revolves.

The wooden models are called chucks, and their name is legion. In spinning a piece the chuck is changed as the work advances, much the same as the stakes are in hammering. If the work is necked like a cream-pitcher, the last courses bind the chuck fast inside. This difficulty is obviated by splitting it into sections, puzzle fashion, and fitting it together in such a way that the withdrawal of a central piece releases the others and allows of their removal. In the first days of spinning, the chuck was burned away, necessitating a new one for each piece spun. Both expert hammerer and spinner learn to treat their silver wooingly, knowing its perverse objection to force.

The spun piece lacks the individuality of hammered work, the ninety-ninth piece being exactly reproduced in the nine hundred ninety-ninth, and it is through this multiplicity that the price is brought within range of the multitude. The hammerer, following a specific contour, yet varies his work according to his mood, not unlike the manner of his great master teacher Nature. He may have a new impulse before the second piece is begun, he may make twenty pieces of some favorite pattern; but

each piece will present distinctive differences if closely studied for comparison.

Tray-making is a department to itself. The smaller sizes may be stamped, but larger ones are usually swaged. The most expensive tool of a small shop is the bottom stake, used for hammering the flat surface; a cubical piece of wrought iron with a welded steel top, about five by seven inches, and a shank by which it is firmly bedded like the anvil in a larger wooden block. Its top is only slightly full and polished like a mirror. The forging, welding, hardening and tempering, and final finish of a perfect bottom stake represent one of the triumphs of a tool-maker's craft.



SWAGES AND SNARLING-IRON

The swages by which the edge is lifted to receive the mount are the grotesques of the shop, being easily suggestive of rude Celtic heads with gaping jaws. They are worked in the vise, the lower jaw being stationary. The edge of the tray is hammered as it is slowly revolved between the comple-

mentary curves of the two jaws, the upper one of which is hinged. The contour of the uplift being thus formed, it is ready for the mount. Heavy and elaborate mounts are made from stampings, done in sections, and fitted and soldered to the edge. In hand-made work it is best to undertake only the simpler mounts, that may be made from reeded or turned wire. The setting of the bottom comes last. It must be so hammered that the tray is just slightly full in the center, but on no account left so that it will buckle back and forth under pressure of the hand. This becomes increasingly difficult as the size advances, and the silversmith who can hammer a perfectly rigid bottom in a twenty-four inch tray is very justly proud of his skill.

Wire is used in so many ways, that a considerable stock would be always needed if it were kept in all sizes. With a drawbench and tongues any size is obtained, by passing it through a plate containing a series of graded holes. The hand-power drawbench is interesting as retaining unchanged the form used in Cellini's day.

The same pan and flame are used in soldering as in annealing. The interesting part of soldering is found in the ingenuity and nicety called for in fitting and securing the parts, and the pride of the workman in a nice clean job, in which no more solder is used than is actually required.

The work of finishing, from the writer's standpoint, is a necessary evil. Under the most painstaking effort some marks will be incurred which require removal. These are first stoned out with pumice,

and later the piece is evenly surfaced with "water Aye stone," a soft, gray, slaty-looking stone from the land of Burns. Hand work beyond this point is wasted time, since it is wholly monotonous and mechanical, and the finishing-lathe, with its brushes and buffs, is a welcome adjunct. The degree of polish is a matter of taste. The professional finisher will sacrifice everything to produce a spotless surface of mirror-like perfection, and surely nothing makes a cheerier, more attractive display than a glittering collection of this description, as is well illustrated in a fine old Fifth Avenue store, where the cases are lined with nothing but this brightest of silver.

Its flawless perfection vanishes with the first instant of its use, and the hand worker generally chooses a middle ground, such as will be easily retained in service, and at the same time detract nothing from the careful detail of his work.

The study of heightened effects produced through color adds a chemical interest to working in silver, that of late years has been minutely studied, until the natural oxide and parcel gilt of bygone days are now greatly varied.

We are seldom content for long with the simplest forms that will meet necessity.

Ruskin recognizes this disquietude of spirit as the "desire of change," saying that the building of birds and bees needs not express anything of it, for it is perfect and unchangeable, but we, because we are something better than the birds and bees, must confess we have not reached the perfection we can

imagine, and cannot rest in the condition we have attained. Under pressure of this great vital instinct we are soon led to the last department of the silversmith's work, that of ornament.

For plain ornamentation the quiet dignity of a beautiful flute is always satisfactory. The set universally known as the "Queen Anne" is a fine example of what may be done with a simple, straight flute. Old sets of this pattern were worked by hand, and differences of relief and other detail make them subjects for interesting comparison. Its popularity has been the occasion of its downfall. It is now often carelessly modeled, and stamped in halves and soldered. This is only true of cheaper sets, for fine examples are still made and hand fluted. A more seductive and subtle flute may be found illustrated in the September *Craftsman*, in a piece attributed to Lelièvre.

A curious tool known as the snarling-iron is used in smaller flutes, where the work is to be completed on the pitch. The difficulty of delivering a blow on the inside of the body is overcome by this long slender iron with its rounded, upturned end, over which the piece is held while the long arm of the iron is hammered, the blow reacting at the end upon the silver and forcing it up. It makes a ludicrous, complaining noise aptly characterized by its name. It is a tool as old as the draw-bench and has never been improved upon. The flute is roughly indicated by this process and worked up from the outside with the punches. Larger flutes are shaped on wood, and perfected on steel heads.

It is necessary in all ornamentation to work against a resisting medium, which, while sufficiently firm to preserve the shape, is yet elastic enough to yield to the required outline or relief. This is found in a composition known as chaser's pitch. It is to be found listed among supplies, but unless the chaser understands compounding it, he frequently undergoes annoyance from its failure to meet his needs. It is melted and poured into the piece and allowed to harden. A canvas bag filled with sand, or a leather collar is needed to rest the work upon, and it is held firmly in place by a narrow leather stirrup, which is passed through holes in the bench, and in which the foot rests as the chaser sits at work.

The most numerous tool in the shop is the little steel chasing-punch, much smaller than the fluting punches, being no larger than a ten penny nail. The top is flattened to receive the blow of the hammer, and the opposite or chasing end has an endless variety of delicately graded forms. The working outfit of an experienced chaser comprises hundreds of these little tools, which have been shaped, hardened and tempered by him to suit his need. The hammers for the work are very light with slender shafts.

An old form of ornamentation, closely allied to line engraving, and quite recently revived, is known as flat chasing. It is done without relief, depending for effect upon beautiful outlines, and a carefully considered study of related backgrounds. The punches used are narrow oblongs called tracers, and mats for the ground.

A kind of work not so often seen is intaglio, in which the outline is set down throwing the pattern into relief. Between the low relief of intaglio and high relief of repoussé there are endless gradations, in which the treatment may be simply a matter of bold, strong outline, or embody the minutest and most delicate detail. The artist here betrays himself revealing his strength and his limitations.

The pattern is first drawn on in pencil, and corrected with the marking-point. Then the relief is considered, and the snarling-iron indicates in rude upliftings where this is to be worked up. This done, the piece is filled with pitch and cooled, when it is ready for the sand bag and chasing punches. The ground about the outline is first set down, and then the pattern is treated in detail. The process is the same as in the large shops with this exception. In the large shop no time is figured for individuality. The pattern is furnished by the designer and the problem becomes, "how many in a given time." The worker copies faithfully as he can, with no concern as to the why that underlies the how, concentrating his purpose on attaining skill.

The occasional one whose soul is intent on expressing the best that there is in him, can never appeal to the many, known to the trade as the market, he must be content to work for the few who recognize the truth of his effort and find a joy in it.

No account of tools or processes can carry with it the infectious enthusiasm that accompanies their use, even though one be but an onlooker. The absorbing interest that follows the new shape to be

determined, the lacking tool to be supplied, the style of ornament best suited to the chosen form, its treatment, its limitations, knows no abatement.

Unless the workman is prepared to count the joy of doing things as a part of his assets, it is probably best that the work be done in sympathetic groups, directed by a master spirit. The technical difficulties that confront the would-be metal-worker are scattered thick if he would carry on the work alone from design to finish, and no term of short apprenticeship will suffice.

But if there only be within him the spark of the thing that lifts his effort to the higher level of true art, the warmth of that wee fire will comfort and uphold him in his endeavor, so that selecting and arranging from the great Wonder Book that is his free possession, he may so interpret the things he finds that the seeing eye pauses to behold the challenge of his inspiration, lingers and is satisfied.

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Ralph Waldo Emerson